

AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior versions of the claims.

1. (Currently Amended) A bias sputtering film forming process for forming a thin film by applying both voltages of a cathode voltage and a substrate bias voltage, wherein

a thin film is formed on a substrate whereon an irregularity is formed in the state wherein only the cathode voltage is applied, and

sputtering film forming is performed while progressively varying only said substrate bias voltage so that the thickness of said thin film formed on internal surfaces of said irregularity is substantially uniform, wherein said progressively varying substrate bias voltage corresponds to stored substrate bias voltage values in a database stored in a control system.

2. (Previously Presented) The bias sputtering film forming process according to claim 1, wherein said cathode voltage is also varied, and said bias sputtering film forming is performed while varying said substrate bias voltage.

3. (Original) The bias sputtering film forming process according to claim 1 or 2, wherein sputtering particles coming from a target enter substantially vertically in said substrate.

4. (Original) The bias sputtering film forming process according to claim 1 or 2, wherein said thin film is used as a barrier layer, or a seed layer for electrolytic plating.

5. (Previously Presented) A bias sputtering film forming apparatus comprising an AC power source or a DC power source of variable output against a

substrate electrode and a database stored in a control system, wherein said control system

sets a cathode voltage to a predetermined value,

stores a substrate bias voltage value in the database when the substrate electrode is apart from a target by a predetermined distance and the thickness distribution of thin films on a surface of the substrate electrode corresponding to said substrate bias voltage value as reference data, and

controls the output of said power source such that the output is progressively varied based on bias voltage functions produced by selecting a substrate bias voltage value from the database, which renders said film thickness substantially uniform when the surface is formed.

6. (Previously Presented) The bias sputtering film forming apparatus according to claim 5, in which said apparatus further comprises a power source of variable output against said cathode, wherein said control system also varies the cathode voltage by controlling the output of said cathode power source, ~~in~~ and said bias sputtering film forming is performed by controlling the output of said substrate power source based on said bias voltage functions.